FLORIDA AGENCY FOR HEALTH CARE ADMINISTRATION

CHARLIE CRIST
GOVERNOR

ANDREW C. AGWUNOBI, M.D.
SECRETARY

May 2, 2007

Marlene H. Dortch, Secretary
Office of the Secretary
Federal Communications Commission
9300 East Hampton Drive
Capitol Heights, MD 20743

Ref.: Application for the Rural Health Care Support Mechanism, WC Docket No. 02-60

Dear Secretary Dortch:

Thank you for this opportunity to apply for the Rural Healthcare Pilot Program. Our proposal has been developed as a partnership between the Agency for Health Care Administration (AHCA) and the Big Bend Regional Healthcare Information Organization (Big Bend RHIO). This initiative is supported by a diverse stakeholder collaborative including health care providers, the Office of the Governor, and key state and regional economic development organizations.

The proposal will provide broadband gigabit optical fiber connectivity to the rural hospitals and citizens in the Big Bend and Florida Panhandle regions and will connect to the Florida and National Lambda Rails and Internet2. The project will develop vital rural telecommunications infrastructure in North Florida thereby strengthening access to and the quality of health care services in disadvantaged rural areas.

The program will connect rural hospitals and clinicians to the health information network of the Big Bend RHIO enabling these rural providers to share patient health care information with urban referral centers. Later, the network will interface with the other RHIOs through Florida Health Information Network which will further support access and response to time-critical and life-threatening medical conditions.

Please accept our enclosed application and supporting documents. With the initial funding of the Pilot Program, we look forward to implementing a health care and economic development model that can be replicated in other regions of Florida and by other states.

Sincerely,

Lisa K. Rawlins

Lisa Rawlins
Director
Florida Center for Health Information and Policy Analysis
Agency for Health Care Administration

LR/cbs

2727 Mahan Drive, MS#16
Tallahassee, Florida 32308

Visit AHCA online at
http://ahca.myflorida.com

Big Bend Regional Healthcare Information Organization
BBRHIO

May 3, 2007

Federal Communications Commission
Office of the Secretary
Commission's Secretary
236 Massachusetts Avenue, NE, Suite 110
Washington, DC 20002.

Subject: Application Submission for Rural Health Care Support Mechanisms
WC Docket No. 02-60

Dear Sir or Madam:

Enclosed please find an application developed in partnership with the State of Florida Agency for Health Care Administration and our diverse "Stakeholders Collaborative" for implementation of a pilot dedicated broadband network.

The project will provide a gigabit optical infrastructure to connect nine hospitals across a broad rural region and deliver services to the private sector. The network will connect the rural communities to the Florida and National Lambda Rails and Internet2 providing an unprecedented opportunity to support real-time delivery of health care information, telemedicine services and access to higher education resources.

We have broad support ranging from our Governor Charlie Crist, the health care community, private investors, the region's largest electric utility company, and the rural economic development organizations serving the state. Private investors will work to ensure funding of the 15% match for building the infrastructure and the economic development organizations have made a commitment to support and help sustain the infrastructure with additional rural economic development funding beginning the second year. The system will have the capacity to support private-sector services to further sustain the network, and help attract critically needed economic development to the region.

The health care network will be interfaced to the BBRHIO network to interconnect patient's health care information to regional hospitals, specialist, and other providers on the network. Eventually the network will connect to the states Florida Health Information Network.

In all, our program will provide enhanced health care quality to the citizens of the region, provide distance learning opportunities to practitioners, help reduce the cost of healthcare delivery and economic hardship for the residents and communities of the region.

Thank you for consideration of our proposal and we look forward to working with you. If you have any questions please feel free to contact me.

Sincerely,

Lawrence D Kaelin

L. Dan Kaelin, MD
Chairman

Application for
Rural Health Care Support Mechanism
WC Docket No. 02-60

Rural Health Care Pilot Program

Connecting Florida's Rural Health Care Providers to a Broadband Information Network

Prepared by:

Florida Center for Health Information and Policy Analysis
Agency for Health Care Administration
22727 Mahan Drive, MS #16, Tallahassee, FL 32308

Big Bend Regional Healthcare Information Organization
1911 Miccosukee Road, Tallahassee, Fl 32308

Submitted to:

Commission's Secretary, Office of the Secretary
Federal Communications Commission
236 Massachusetts Avenue, NE, Suite 110, Washington, DC 2002

Jeremy Marcus
Thomas Buckley
Erika Olsen
Telecommunications Access Policy Division
Wireline Competition Bureau
Federal Communications Commission
445 12th Street, SW, Washington, DC 20554

Executive Summary

The Florida Agency for Health Care Administration and the Big Bend Regional Healthcare Information Organization, with a group of health care stakeholders from the public and private sectors, propose to connect nine hospitals in eight rural counties in the Panhandle and Big Bend regions of north Florida and connect them to the Big Bend Regional Healthcare Information Organization in Tallahassee and the Escambia Health Information Network in Pensacola. Health information exchange services delivered to the urban hospitals in Tallahassee and Pensacola can then be extended to the rural hospitals. The nine rural hospitals will also have access to pediatric telehealth services from Children's Medical Services in the Florida Department of Health (DOH) and from the Nemours children's medical system. Continuing education services from the Florida State University (FSU) College of Medicine can be offered to rural physicians.

The proposed pilot project will employ an existing ten gigabit per second optical fiber network built by the Florida LambdaRail that runs throughout the state and parallels Interstate10 in North Florida, as shown in Figure 3. The Agency for Health Care Administration and the Big Bend Regional Healthcare Information Organization propose to construct gigabit fiber facilities from the Florida LambdaRail interface points, to a constructed point of presence (POP) in each of the eight counties, and then construct gigabit last mile connections to the nine rural hospitals in the project.

Once the connections are complete, then each of the hospitals will be connected to the Big Bend Regional Healthcare Information Organization, which will provide secure messaging services and facilitate the transmission of large imaging files, to facilitate the transfer of x-rays, MRIs, CAT scans from fixed or mobile imaging units and other digital files between the rural and urban specialty providers in their network. Building the gigabit fiber network will occur in the first year of funding.

In year two of the proposed project, a broadband wireless network will be installed in each county to provide broadband connectivity to each of the community health centers and not-for-profit clinics in each county The health information exchange services of the Big Bend RHIO will be extended to these clinics. Implementing the broadband wireless network will expand the number of telehealth services available to rural physicians, and should result in better quality of care for their rural patients.

Project assets include:

- The BBRHIO has services and applications that can immediately leverage the broadband network.
- The eight counties are the most rural in the state, with some being isolated rural. The pilot would improve the overall rural community environment.
- The project will be needs driven rather than profit driven.
- By controlling the infrastructure we control the ability and timeline to deliver new services and technology as needed compared to waiting for traditional carriers.
- The infrastructure will allow all rural providers to access low cost ASP EMR applications to facilitate accelerated transition from paper to EHR.
- The capital resource will be utilized to benefit the communities and all their stakeholders not a traditional telecommunications carrier.

- The BBRHIO has already demonstrated urban sustainability and believe that rural sustainability is achievable.
- The Agency for Health Care Administration has the experience to manage a project of this scale and has the confidence that the Big Bend RHIO, ElectroNet and the Florida LambdaRail can successfully construct, manage and operate the network.
- The Florida LambdaRail and ElectroNet have the experience in building dedicated networks to fill the gaps in existing telecommunication infrastructure.
- With a connection to Georgia's PeachNet the network can easily include rural areas of south Georgia, creating a multi state broadband network.

A key objective of the project is to establish a self-sustaining operational model that balances the benefits and costs of the network on all participants including urban providers, rural providers and the private sector. The network will be sustained by the revenues generated by user fees for services which will be established by the Big Bend RHIO.

Table of Contents

Connecting Florida's Rural Health Care Providers to a Broadband Information Network

Application

1) Organization that will be legally and financially responsible for the conduct of activities supported by the fund:

The Big Bend Regional Healthcare Information Organization will be legally and financially responsible for the project, and will oversee all construction of the broadband network to rural hospitals.

Big Bend Regional Healthcare Information Organization
1911 Miccosukee Road
Tallahassee, Fl 32308

The Agency for Health Care Administration (Agency) will provide oversight for the rural broadband pilot program and has assigned on-going responsibilities to the Florida Center for Health Information and Policy Analysis within the Agency.

Agency for Health Care Administration
Florida Center for Health Information and Policy Analysis
2727 Mahan Drive, MS #16
Tallahassee, FL 23208

The Agency for Health Care Administration and the Big Bend Regional Healthcare Information Organization are assigning the responsibility of building the rural broadband network to the Electronet Intermedia Consulting, which will work in conjunction with Florida LambdaRail.

The Agency for Health Care Administration (Agency) is the chief health policy and planning entity for the state of Florida. The Agency is responsible for health facility licensure, inspection, and regulatory enforcement; investigation of consumer complaints related to health care facilities and managed care plans; the implementation of the certificate of need program; the operation of the Florida Center for Health Information and Policy Analysis; the administration of the Medicaid program; the administration of the contracts with the Florida Healthy Kids Corporation; the certification of health maintenance organizations and prepaid health clinics.

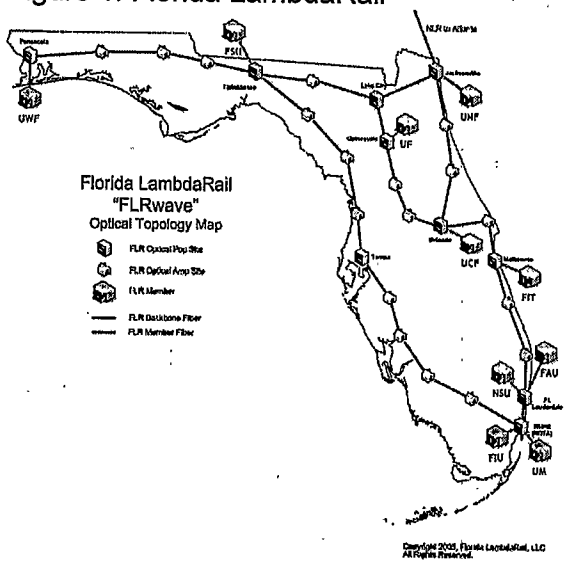
The Florida Center for Health Information and Policy Analysis (Florida Center) is a comprehensive health information center whose mission is to provide for the collection, compilation, coordination, analysis, indexing, dissemination and utilization of both purposefully collected and extant health-related data and statistics. It is staffed with public health experts, biostatisticians, information system analysts, health policy experts, economists, and other dedicated staff. The Florida Center is responsible for the identification, collection, standardization, sharing and coordination of health-related data, and recommends improvements for purposes of public health, policy analysis and transparency of consumer health care information. The Florida Center also coordinates the Florida Health Information Network Grants Program for Regional Health Information Organizations around the state. The Florida Center has distributed $3.5 million in grants to fifteen projects in the past two years, and expects to distribute another $2 million in grants in 2007-2008. The grant program is intended to leverage the startup of health information exchange projects across Florida and to incentivize providers to adopt electronic health record technologies.

The Big Bend Regional Healthcare Information Organization (Big Bend RHIO) is a (not–for-profit status applied for) Florida Corporation that provides health information exchange services in the Tallahassee, Florida, area to deliver an enhanced level of patient centered care. The Big Bend RHIO is working on applications that facilitate and support patient participation in managing their electronic health records. Big Bend RHIO initiatives involve every major component of the local and rural health care systems from physician's offices to HMOs to hospitals, laboratories and pharmacies.

The Big Bend RHIO has twice been funded by the Florida Health Information Network Grants Program to implement a regional health information network. The project architecture provides a regional master patient index system needed to accurately identify patients, a record locator service to provide practitioners with patient information from disparate systems, secure physician messaging, secure electronic referrals, e-Prescribing and a standardized patient intake form which will also serve as a secure personal health record for patients. The project is scheduled to be operational by June 2007, and health information exchange services from the Big Bend RHIO will be made available to the rural hospitals in this pilot project.

ElectroNet is a Florida-based telecommunication company that operates a gigabit Metro Ethernet broadband network to serve the needs of health care providers in Tallahassee, Florida. The network provides secure transport for providers with multiple locations, Internet access with centralized VPN, firewall, security and intrusion detection. Electronet will work with the Florida LambdaRail to build the rural broadband network. Florida LambdaRail is a high speed optical network that spans Florida and connects to all the major medical institutions. Florida LambdaRail will provide the on/off ramps for connectivity to the state-wide network. Electronet will build the "last mile" to connect each of the rural communities and their hospitals.

Figure 1. Florida LambdaRail



2) Goals and Objectives of the Proposed Network

The goal of the proposed pilot project is to improve health care services to the citizens of rural counties in Florida through enhancing and developing the telecommunication infrastructure in coordination with the Florida Health Information Network initiative. The Florida Health Information Network initiative is a public-private partnership that seeks to integrate local health information networks, state-level public and private health care databases such as the Florida immunization registry, commercial payors and Florida Medicaid. The goal of the emerging Florida Health Information Network is to create a statewide network that will enable authorized health care providers to access patient medical records through a secure Internet connection. One of the specific objectives of the Florida Health Information Network is to offer cost effective information technology services to primary care physicians, rural health care providers, and community clinics serving indigent patients.

The specific objectives of the proposed project:

1) Connect rural hospitals located in the North Florida Big Bend and Panhandle rural health regions with urban providers in Tallahassee and in Pensacola, Florida, through a dedicated broadband network.
2) Extend services from the Florida Health Information Network and the Big Bend Regional Healthcare Information Organization to rural providers.
3) Provide better coordination of health care for patients in the rural areas of the Big Bend and Panhandle.
4) Employ telemedicine applications for chronic disease monitoring, access to pediatric specialists from Children's Medical Services and Nemours, and continuing education of rural physicians with the Florida State University College of Medicine in Tallahassee
5) Develop a funding formula for sustainability of services to eligible providers in rural counties or underserved areas.

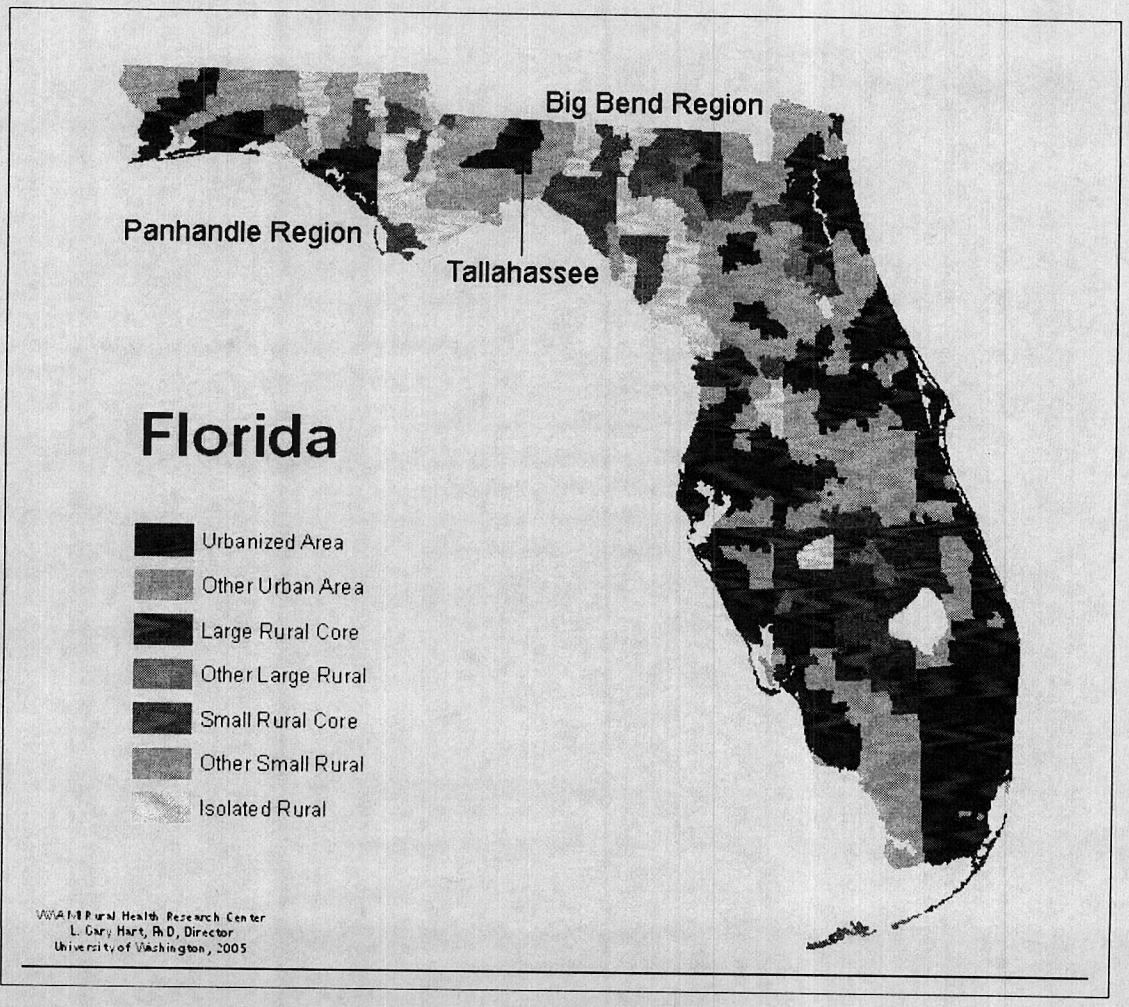
The counties addressed by this proposal make up over 60% of the area known as Florida's Great Northwest, which includes the Big Bend and Panhandle regions, which are informal designations with some overlap of counties. Geographically, they form a band of counties that run about seventy miles to the east and west of Tallahassee, Florida, as shown in Figure 2. These counties are rural in nature and fall significantly below state and national averages for critical quality of life indicators such as per-capita income, employment, education, infrastructure, transportation, and health care. The poverty rates in these eight counties ranges between 16.7% and 23% of the populations. In contrast, significant coastal development is encouraging migration from other parts of Florida and the rest of the country into a region with limited community resources, little infrastructure to support this growth, inevitable demands for enhanced services and supports, and inadequate transportation and telecommunications systems to support emergency preparedness in response to a disaster.

With very limited economic resources, the health systems in the eight counties have not kept pace with more economically developed regions of the state. But they are stressed by the great need to provide health care to a populous that can least afford it. Bringing broadband connectivity to the hospitals in these eight counties would offer them access to health care resources that are not currently available to them. The great advantage of the proposed pilot project is that it proposes to deliver the broadband connection at significant savings compared to current offerings.

Current research shows that hospitals in the rural counties of the Big Bend and Panhandle regions that have no health care system affiliation have significantly less information technology infrastructure than urban hospitals. For example, only 45% of unaffiliated rural hospitals in the Panhandle have a local area network, compared to 68.4% of system-affiliated rural hospitals and 89.7% of urban hospitals in Florida.[1] This comparison holds across other information technology systems, such as emergency department information systems or maintaining an intranet. The value of the proposed pilot project is in bringing existing broadband connectivity and technologies to the rural hospitals of Florida's Panhandle. Providing them with the network services of the Big Bend RHIO, will improve their information technology status and begin to develop their telecommunications infrastructure to more modern standards and capacity.

[1] Menachemi, N., et. al. (Summer 2005). Information technologies in Florida's rural hospitals: does system affiliation matter? The Journal of Rural Health, Vol. 21, No. 3.

Figure 2. Rural Urban Commuting Areas in Florida[2]



Connecting Rural Hospitals in the Big Bend and Panhandle Regions of Florida

The Agency for Health Care Administration convened a group of health care stakeholders from the public and private sectors to address the issue of providing broadband connectivity to hospitals in rural Florida within the context of the FCC Order. The applicants propose to connect nine hospitals in eight rural counties in the Panhandle and Big Bend regions of north Florida and connect two Regional Health Information Organizations in Tallahassee and Pensacola. The connections will be made using gigabit optical fiber to improve their health information infrastructure in coordination with the Big Bend RHIO and the Florida Health Information Network initiative. The objective is to connect the nine hospitals to urban providers in Tallahassee and Pensacola by partnering with the Big Bend Regional Healthcare Information Organization (Big Bend RHIO), the Escambia Health Information Network (Escambia HIN) and the Florida LambdaRail. Once the rural hospitals are connected to the network, health

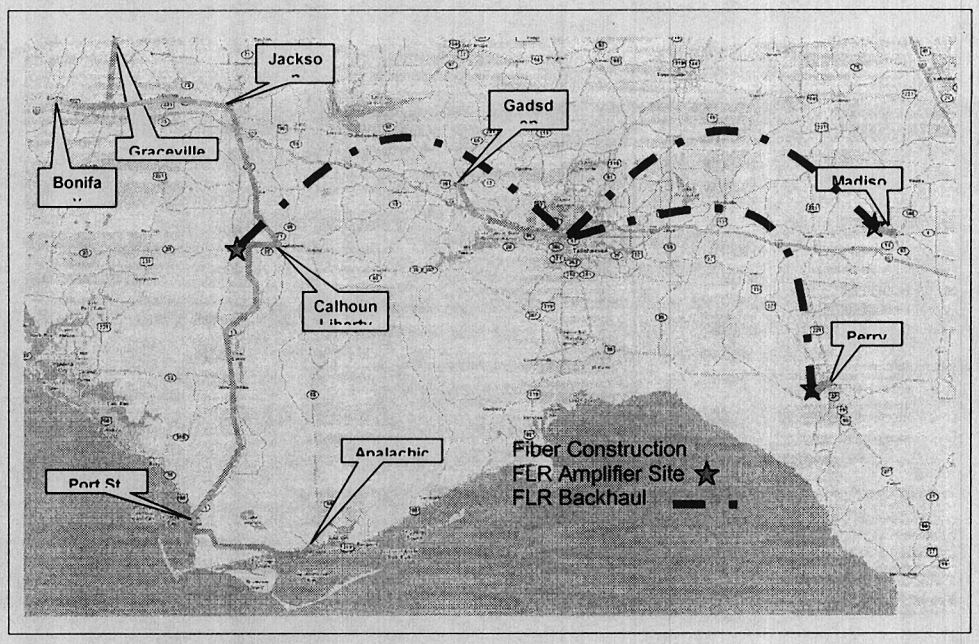
[2] WWAMI Rural Health Research Center, University of Washington, Retrieved from http://depts.washington.edu/uwruca/Map_7.html, April 23, 2007.

information exchange services can be extended from the Big Bend RHIO and the Escambia HIN. Rural hospitals will have access to pediatric telehealth services from Children's Medical Services in the Florida Department of Health (DOH) and from the Nemours children's medical system. Continuing education services from the Florida State University (FSU) College of Medicine can be offered to rural physicians.

Contributors to the grant proposal include the Agency for Health Care Administration, Children's Medical Services and the Office of Rural Health in the Department of Health, the Rural Economic Development Initiative Program in the Office of the Governor, MyFloridaNet in the Department of Management Services, FSU College of Medicine, the Florida Hospital Association, the Florida Medical Association, North Florida Medical Centers, the Association of Community Health Centers, the Big Bend Rural Health Network, Nemours Children's Medical System, the Community Health Informatics Organization, the Big Bend RHIO, the Escambia HIN and the Florida LambdaRail.

The proposed pilot project will utilize an existing optical fiber network built by the Florida LambdaRail that runs throughout the state and parallels Interstate10 in North Florida, as shown in Figure 3. The Florida LambdaRail has capacity for up to 32 separate networks running at ten gigabits per second. The stakeholders propose to construct gigabit fiber facilities from the Florida LambdaRail interface points, to a constructed point of presence (POP) in each of the eight counties, and then construct gigabit last mile connections to the nine rural hospitals in the project. Once the connections are complete, then each of the hospitals will be connected to the Big Bend RHIO, which will initially provide among other services, secure messaging services and facilitate the transmission of large imaging files, to facilitate the transfer of x-rays, MRIs, CAT scans from fixed or mobile imaging units and other digital files between the rural and urban specialty providers in their network. Building the gigabit fiber network will occur in the first year of funding.

Figure 3. Proposed Gigabit Network to Rural Hospitals



The not-for-profit rural hospitals slated for broadband connection to the Florida LambdaRail include Calhoun-Liberty Hospital in Calhoun County, Gadsden Community Hospital in Gadsden County, Sacred Heart Hospital in Gulf County, George Weems Memorial Hospital in Franklin

County, Doctor's Memorial Hospital in Holmes County, Campbellton-Graceville Hospital in Jackson County, Jackson Hospital in Jackson County, Madison County Memorial Hospital in Madison County and Doctor's Memorial, Inc. in Taylor County. The Big Bend RHIO and the Escambia HIN would also be connected through the Florida LambdaRail to allow the rural hospitals to take advantage of the services provided by these regional health information networks. Urban or for-profit hospitals that will be offered the opportunity to connect to the network include Tallahassee Memorial HealthCare and Capital Regional Medical Center in Tallahassee, which can connect through the Big Bend RHIO, and Sacred Heart Hospital and Baptist Hospital in Pensacola, which can connect through the Escambia HIN. Additional not-for-profit and for-profit hospitals that could be connected to the broadband network include Bay Medical Center and Gulf Coast Medical Center in Panama City and Northwest Community Hospital in Chipley, Florida, though new fiber would have to be run to these facilities.

Video Teleconferencing and Children's Services

In addition to connecting the nine hospitals with a gigabit fiber network, the Agency is proposing to install videoconferencing equipment to support telehealth services in each hospital and in two facilities run by Children's Medical Services, located in Tallahassee, Florida. Providing videoconferencing services over the broadband network will enable rural patients to receive pediatric telemedicine services from Children's Medical Services and to receive services from pediatric specialists at the Nemours children's medical system, located in Pensacola, Florida. The FSU College of Medicine can also offer continuing education programs to rural doctors over the telehealth network. An example of a videoconferencing suite might include the following technologies:

- General Examination Camera - NTSC video format
- Digital Electronic Stethoscope
- 12 Lead Interpretive ECG for PC (Software/Hardware combination)
- Digital Spirometer for PC
- X-ray Scanner
- Vital Signs Monitor (Will connect to an Electronic Medical Record system.)
- Desk top video conferencing kit, camera and software
- Mobile cart
- Additional software and installation

Wireless Broadband Connectivity in Year Two of the Pilot Project

In year two of the project, the Agency is proposing to install a broadband wireless network in each county for the purpose of providing broadband connectivity to each of the community health centers and not-for-profit clinics in the Panhandle and Big Bend regions of Florida through the Florida LambdaRail. The health information exchange services of the Big Bend RHIO will be extended to these clinics. The wireless broadband network will also be made available to private practitioners who require broadband connectivity for their practices. These providers will be charged a sustainable rate for using the broadband system. Pharmacies can also connect to the system, for an appropriate fee, to help encourage e-prescribing among physicians. Cost incentives and other comparable market offers may be utilized to encourage payer participation at startup. Implementing the broadband wireless network will expand the number of telehealth services available to rural physicians, and should result in better quality of care for their rural patients.

The wireless network would leverage WiMAX (World Interoperability for Microwave Access) technology, based on the IEEE 802.16 standard, it is expected to enable true broadband

speeds over wireless networks at a cost point to enable mass market adoption. WiMAX is the only wireless standard today that has the ability to deliver true broadband speeds and help make the vision of pervasive connectivity a reality. There are two main applications of WiMAX today: fixed WiMAX applications are point-to-multipoint enabling broadband access to homes and businesses, whereas mobile WiMAX offers the full mobility of cellular networks at true broadband speeds. Both fixed and mobile applications of WiMAX are engineered to help deliver ubiquitous, high-throughput broadband wireless services at a low cost.

There is a substantial unmet need for very high-speed wireless wide area Internet access to both fixed and mobile devices in the communities served by the proposal. WiMAX is an advanced technology solution, based on an open standard, designed to meet this need, and to do so in a low-cost, flexible way. WiMAX networks are optimized for high-speed data and should help spur innovation in services, content and new mobile devices. Benefits include:

- Alternative connectivity to off-net buildings
- Promise of more bandwidth at lower prices
- Support packet based services, consistent with customer demands
- Support service bundles, including VoIP
- Technology to deliver business-class performance and reliability
- Rapid installation
- Provides back-up diversity and disaster recovery
- Flexible/redeployable network capacity
- Coverage in underserved regions

Connecting Rural Hospitals to the Florida Health Information Network and the Big Bend RHIO

The Florida Health Information Network initiative proposes to create a statewide health care network that will integrate communications and data transfer among local health information exchanges and Regional Health Information Organizations (RHIOs) to promote health information exchange among authorized health care providers. The Florida Health Information Network is envisioned as a statewide health information infrastructure that will enable health care professionals to access a patient's medical records from any provider database connected to the network over a secure Internet framework. The Florida Health Information Network represents a collaborative effort among the public and private sectors, state and local governments, RHIOs and health information exchanges, providers, employers, consumers, health plans and payors. The Florida Health Information Network actively supports local RHIOs in implementing their plans to integrate health care data in their communities through a grants program.

There are a small number of rural hospitals in the state, notably in the eight counties in the Florida Panhandle and the Big Bend, that have telecommunication connections limited to telephone lines, and little access to broadband communications. Physicians in the rural counties also experience limited connectivity in their offices and homes. When patients in the rural counties are sent to larger, urban hospitals for care by specialists or for radiology and other clinical tests, the results are not readily available to their primary care physician. When providers become part of the statewide health information exchange, their patients benefit from having their health care records more accessible for medical treatment, and physicians benefit from having a complete medical record for making a diagnosis. Without connectivity, these benefits are not available to the rural physician, either in private practice or in the hospital. Facilitating access to broadband telecommunications by these rural hospitals in the Panhandle and Big Bend is a priority for the Florida Health Information Network.

When the rural hospitals can be connected to broadband fiber, they will be given the opportunity to join the Big Bend RHIO and will be connected to the Florida LambdaRail high speed telecommunications network, and ultimately to the National LambdaRail, Internet2 and the Florida Health Information Network. Each facility will be offered the electronic health care services that the Big Bend RHIO provides to its members, as well as pediatric telehealth services provided by Children's Medical Services in the Florida Department of Health and the Nemours children's health system, and continuing education services that can be offered by the Florida State University College of Medicine.

The Big Bend RHIO utilizes a centralized architecture to support clinical data exchange among health care providers. The organization is taking the national standard for the continuity of care record, matching it with the minimal data sets recommended by the Florida Health Information Network and developing a continuity of care record for the Big Bend that fits the needs of the area. It is the centralized approach taking advantage of the continuity of care record (CCR) that provides the most value for the community. The centralized architecture facilitates better backup, disaster recovery and alternate geographic storage for community data. Geographic diversity is of significant importance to these communities based on their proximity to the Gulf coast. This architecture also provides the most efficient platform to share data with the Florida Health Information Network. The network would provide the ability for practitioners to access low cost ASP EMR applications which will help drive adoption and accelerate the transition from paper to electronic health records (EHR).

The immediate Tallahassee area is not the only focus of the Big Bend RHIO. The Big Bend RHIO is working with the Rural Medicaid Coalition of North Florida and officials at Doctors' Memorial Hospital in Perry, Florida to establish a health information exchange with the regional health information network. By supporting each others' effort we can work together to achieve a far greater success than either of us could do alone. We need the efforts of this rural organization to organize this unique group of providers so we can fully understand how to meet their needs and the needs of the patients they treat.

These connective links will bring the rural hospitals and clinics into the statewide health information exchange, for the timely and accurate delivery of health care records to rural physicians. The broadband connectivity will also set the foundation for implementing telemedicine services at each rural hospital, to allow patients to consult with specialists in another part of Florida or the nation without traveling hours for the visit. Providing broadband connectivity to these rural hospitals and clinics constitutes a win-win proposition for the hospitals, the Big Bend RHIO, the Florida Health Information Network and the residents of these communities.

Coordination of Care in Rural Health

The vision for the development of a healthy rural community requires the provision of appropriate environmental, medical, and social services to prevent, detect, and minimize disease, physical and mental discomfort and disability, and to promote and sustain a high level of wellness. There are many obstacles to achieving this vision, not the least of which is the coordination of patient information and care among those health providers involved in diagnosis and treatment.

The nature of modern health care requires the involvement of multiple medical providers to effectively diagnose and treat many of the medical conditions affecting individuals. Even primary care providers, who deliver the bulk of care to patients, are frequently dependent upon the specialized knowledge and technology of other providers to accurately diagnose and treat relatively minor medical conditions. For example, patients with lung problems or simple bone

fractures require access to x-ray equipment, the services of a radiologist to interpret the results, services of specialists to consult or provide treatment, and pharmacy services to provide any medications needed. Consequently, coordination of information and services among those multiple medical providers involved in a patient's care is essential for the timely diagnosis and treatment of many medical conditions.

Effective coordination is largely dependent upon the communication of information between providers about a patient's medical condition and any associated diagnostic and treatment that has been provided. Without the sharing of this information, health care providers, regardless of their physical location, are unable to obtain a comprehensive understanding of an individual patient's medical condition and associated care. Failure to coordinate care can lead to delays in treatment and inappropriate care resulting in duplication of services, unnecessary costs, and potential harm to the patient.

The manner in which medical services are organized and delivered in the United States creates problems for the effective coordination of patient care. Medical care is commonly delivered by small independent groups of medical providers who have little if any incentive to manage the care being received by patients from other physicians. Medical providers typically maintain patient information in hardcopy files that are not easily shared with other providers. The mechanisms used to communicate patient information between medical providers are rudimentary and depend largely on the transmission of facsimile copies of information contained in the patient's medical records. This method is slow, subject to error, and does not allow the transmission of more complex visual diagnostic information.

While coordination of medical services by health care providers is an issue for both urban and rural areas, the problem is more pronounced in rural areas. Because of the shortages of medical care providers in rural communities, existing rural medical providers are often hard pressed to provide episodic medical treatment, much less manage and coordinate care for those patients who may be using multiple providers in different cities. Rural patients who require complex diagnostic or specialty medical services either self refer or are referred by their primary physician to specialty providers in nearby urban centers. However, the timely transfer of appropriate patient information for these patients to urban providers is limited by the facsimile and phone methods of transferring patient records. Rural providers typically lack the time, funding, training, and support needed to develop, maintain, and use electronic health information systems for their patients that can be shared with other providers involved in treatment of a patient. The problem of coordination of health information and services in rural areas goes beyond the capability of individual rural providers to maintain information. Even if rural providers developed and maintained systems for electronic health information, the capability to share that information with other providers is often unavailable. One strength of the proposed pilot project is that it will empower providers to transfer records efficiently for better coordination of patient care.

An underlying problem in the coordination of care among rural providers is the lack of an adequate telecommunications infrastructure in rural areas over which health information can be transmitted. Transmission of electronic health information is restricted in rural communities by the lack of access to electronic broadband communications. Local telephone companies are responsible for developing the infrastructure to support telecommunications in Florida's rural communities. While some communities have access to limited broadband capability for transmitting text information, telephone companies have been reluctant to make the necessary investment in high-bandwidth, broadband, fiber optic cable required to transmit audio and digital images used in diagnostic medical care. Consequently, patients referred to urban specialty medical providers for treatment must arrange for the transfer of records and diagnostic information or undergo repeat diagnostic procedures.

To resolve the issue of coordinating medical services, medical providers should develop and maintain systems of electronic record keeping that allow the transmission of patient information in a secure manner. To facilitate the transfer of health information, a system for transmitting electronic information must be developed throughout the state that allows rural providers to communicate with other providers regardless of their location. The proposed pilot program will build the necessary telecommunications infrastructure needed and combined with the BBRHIO applications more timely coordination of health care services and more accurate exchange of information is achievable. BBRHIO document management applications will enhance the exchange of paper records with a simple scanning station that uploads the record(s) to the repository creating an audit trail and the ability to access the record multiple times without re-transmission as in the fax environment.

Employing Telehealth Applications for Telemedicine Services

This rural broadband proposal includes teleconferencing equipment for the delivery of telehealth services to rural patients and physicians. The State of Florida Children's Medical Services and the Nemours Children's Medical System bring a wealth of experience in providing chronic care telehealth services to pediatric patients and families in Florida. The Community Health Informatics Program brings expertise in home health monitoring and the FSU College of Medicine offers a depth of educational expertise.

Children's Medical Services, Department of Health

The Children's Medical Services program in the Florida Department of Health provides children with special health care needs with a family centered, managed system of care. Children with special health care needs are those children whose serious or chronic physical, developmental, behavioral or emotional conditions require extensive preventive and maintenance care beyond that required by typically healthy children. Children's Medical Services provides a comprehensive continuum of medical and supporting services to medically and financially eligible children and high-risk pregnant women. The continuum of care includes prevention and early intervention programs, primary care, medical and therapeutic specialty care and long-term care. Services are provided through an integrated statewide system that includes local, regional, and tertiary care facilities and providers.

Children's Medical Services also offer a program for child protection and clinical care through the creative use of telehealth technology, which eliminates barriers to the provision of health care for children who have special health care needs or who suffer abuse or neglect. Access to specialty care for the child, patient and family education and ongoing support are all enhanced through this technology. Telecommunications and information technology allow Children's Medical Services to provide clinical pediatric care across geographic distances and to transmit the information needed to provide that care. This system is used to reduce the number of children who need transportation for evaluation, to expedite child safety decisions and to increase training opportunities for local health care providers. Currently, this Children's Medical Services telehealth system in available in South Florida only; there is no program available in North Florida.

Nemours

Nemours, based in Jacksonville, Florida, is one of America's largest pediatric group practices and is committed to providing pediatric telehealth in the rural areas of north Florida. Nemours is currently working under a federal grant to pilot the remote monitoring of children with chronic diseases such as diabetes and asthma. Under the program, Nemours monitors about 70 chronically ill children in their homes using electric utility lines to transmit each child's medical information back to Nemours pediatricians. The home monitoring program works with pediatric

asthma patients, and transmits health care information from an array of instruments, including a spirometer, a pulse oximeter and stethoscope to clinicians at Nemours. These data are entered into the Nemours electronic medical record system and used to generate longitudinal picture of a child's health status. Nemours in interested in expanding this network to rural pediatric patients connected through the gigabit broadband network envisioned in this proposal. Pediatricians in a Nemours clinic in Pensacola, Florida, would be available for online consultation.

Community Health Informatics Organization

The Community Health Informatics Organization, based in Fernandina Beach, Florida, incorporates the delivery of health care services, disease management and chronic illness treatment programs. The Community Health Informatics Organization is implementing a community-based telehealth program which will include the development of a community data repository. This repository will be available to provide data feeds to Regional Health Information Organizations and the Florida Health Information Network. The Community Health Informatics Organization allows early intervention and continuing care through routine measuring, recording and transmission of personal health data to local medical practices. Through this service, rural chronic disease conditions can be monitored at home and will become an integral part of at home health care.

Florida State University College of Medicine

The Florida State University College of Medicine, based in Tallahassee, Florida, has the ability to provide video teleconferencing, web-casting, online Continuing Medical Education courses for the rural providers and hospitals in the proposed rural network. The College's mission specifically states that it "will educate ... physicians who practice patient-centered health care, ... and are responsive to community needs, especially through service to elder, rural, minority, and underserved populations." The College of Medicine conducts faculty development and continuing education courses for physicians in the rural areas, many of whom have to close their practice and travel to metropolitan areas to get the continuing education necessary to stay current and fulfill licensure requirements. By providing more easily accessible continuing education programs physicians will be able to keep their practice open resulting in better access to health care in the communities. Access to interactive resources can help alleviate some of the social separation issues that effect rural providers. Often they have little face to face interaction with their peers which can lead to feelings of isolation and even depression. With the ability to easily and visually interact with peers they can better feel a part of the mainstream and reduce the social issues surrounding practicing in a rural or isolated area.

Office of Rural Health, Department of Health

The Department of Health, Office of Rural Health works closely with the rural hospitals in the Panhandle, providing them grant funds to increase their capability. The office is trying to build the internal capability of the rural hospitals, so when they do connect to a system, they'll have a more robust information technology infrastructure to connect with. A primary responsibility of the Office of Rural Health is to bring the hospitals to the table with other parties such as the regional Rural Health Networks and Florida Rural Health Association, to the extent that they can participate. The relationships that the office has built in the rural communities are an asset that can be brought to the table along with the community health centers and other rural providers.

North Florida Medical Centers

North Florida Medical Centers, based in Tallahassee, Florida, are Federally Qualified Health Centers (FQHC), with seven medical clinics in seven rural counties in the Big Bend area. The prospect of having broadband network connectivity is vital to the medical centers because all of

the clinics are rural family practices, with very little access to specialized medicine. Most of the patients are either uninsured, underinsured, on Medicaid or Medicare and transportation issues are paramount. It would be a great benefit to have a specialist use a videoconference link to provide a secondary diagnosis and not have the patient drive 100 or 150 miles one way for the office visit. It is also essential to connect these family practice clinics to other specialists within the urban areas through the network to support teleconferencing between the practitioners. Finally, there is a great need for online access to continuing medical education credits. Currently the clinics shut down when physicians have to leave for continuing education. With online CMEs, it would be possible to maintain patient access to the medical centers and still provide extra training.

Florida Association of Community Health Centers

The Florida Association of Community Health Centers (FACHC), based in Tallahassee, Florida, represents about 45 Federally Qualified Centers across Florida, in excess of 160 locations, mostly in rural areas. Access to telemedicine and online CME credits would have a great impact on them. The FACHC is currently implementing a distance learning strategy for video conferencing units that will be used for CME training.

Big Bend Rural Health Network

The Big Bend Rural Health Network, based in Perry, Florida, includes hospitals, county health departments and other health care providers in five rural counties in north Florida. Its mission is to improve access to health care programs in the five-county area. The network has supported a teleradiology program for the past eight years, based on GE Medical Technology. This program allows patients in the rural counties to have x-rays taken at a local hospital read by radiologists at larger, urban hospitals. However, even though the GE technology uses advanced compression techniques, the images still take five to fifteen minutes to transmit over the available telephone lines and the image quality is somewhat degraded by the compression method. Maintaining the teleradiology program is problematic because broadband connections are not available to the hospitals.

Rural Economic Development Initiative Program

The Rural Economic Development Initiative Program, or REDI, is made up of over 20 agencies. Most of them are state agencies, but do include USDA and EDA as active participants. The focus of the Rural Economic Initiative Program is more than economic development. It looks at quality of life issues and recognizes that no economy is going to do well if it is not supported by good quality of life, which in turn goes back to quality medical care. Opportunity Florida, the Regional Economic Development Council servicing most of the regional is based in Chipley, Florida, and work with REDI to facilitate county and local government involvement in the project.

Through collaboration with these providers of telehealth services, the applicants hope to support the development of telemedicine services to the rural population. Both patients and physicians will benefit from these programs, and the quality of rural health care will surely improve.

Funding Formula for Sustainability of Services

The plan for sustainability of the proposed broadband network is based on establishing competitive transaction and subscription fees to customers who wish to have broadband connections. The relatively low cost of providing gigabit broadband to each community, an estimated $10,343 per month in the second year, can be compared with current services available to not-for-profit health care facilities by a state offering, which cost on average $17,653 per month for DS3 (45 Mb) service or $50,000 per month for OC3 (155mb) service. The steps toward sustainability of the network include:

1) Secure messaging and exchange of large image files among facilities, with transaction fees to be set.
2) Connection fees based on necessary monthly recurring costs.
3) Competitive cost of service with other telecommunication service providers, driving market decisions.
4) Building enough broadband capacity to scale up to include all new subscribers.
5) Using the volume of transactions to help keep down subscription costs, and to help maintain market competitiveness and sustainability.

3) Estimate the network's total costs for each year:

Significant field research has already been completed for the rural broadband pilot project, and it is felt the majority if not all of the eight county network can be designed, engineered and constructed in the first year. The construction would be broken up into multiple phases to ensure the best time and cost outcome for the project. The total amount of the 2007-2008 year budget will be $10,204,119. In year one, $9,099,931 will be applied to constructing the broadband network, with an additional annual total of $555,157 for cost that recur monthly. (A 10% over-budget margin has been added to the project plan budget to accommodate unknown issues that may arise once actual engineering is completed.) Installation of eleven video conferencing suites will cost $549,031. Construction of the network will entail:

- Constructing an estimated 260 miles of aerial fiber to connect eight rural counties, nine rural hospitals, two regional health information networks and nine communities to the Florida LambdaRail interface sites.
- Creating access to the Big Bend RHIO, the Florida LambdaRail, the Escambia HIN, the Florida Health Information Network and the Internet.
- Constructing nine rural communication structures equipped for Metro Ethernet.
- Payment for partial and accumulated pole attachment fees.
- Installation of eleven telehealth sites with video conference equipment.

Year two would consist primarily of installing WI-MAX access points and operational expense during turn-up of services on the newly constructed network. The network should be fully operational within the first four months following completion of construction. The total amount of the 2008-2009 year budget will be $1,117,080. The total cost for the two-year project will come to $11,321,199. Costs in 2008-2009 will include:

- Payment for pole attachment fees.
- Utilities, insurance and land lease for 9 communication structures.
- Recurring cost for multiple gigabit access interfaces to FLR.
- Network operational support & maintenance.
- Outside plant operational support and maintenance.
- Deploying 9 unlicensed WI-MAX type access points.

4) Describe how for-profit network participants will pay their fair share of the network costs:

During the pilot project phase, 2007-2009, fees for not-for-profit participants will be waived. All

other network participants will pay a user fee. Primary care providers may pay a reduced rate or waived fee to create an incentive to start with the network. Incentives and fee structure per participant will be based on analysis of cost of business, number of participating payer providers, growth factor, and consideration for facilities of critical care need. Fee structures will be established by agreement of the Big Bend Regional Healthcare Information Organization and the Florida Health Information Network. Network customers will pay a subscription fee for connectivity as well as transaction fees for exchanging files among network participants.

A comparison of monthly recurring charges between the Big Bend RHIO broadband network and similar connections that include equipment and maintenance costs offered by the state-run MyFloridaNet, in the Department of Management Services, is given in Table 1.

Table 1. Comparison of Monthly Recurring Costs for Broadband Connection to MyFloridaNet and the Proposed Broadband Connection Offered by the Big Bend RHIO.

		T1 (1.5 Mb)		DS3 (45 Mb)		OC3 (155 Mb)	
County	**Hospital**	**MyFlorida Net**	**Big Bend RHIO**	**MyFlorida Net**	**Big Bend RHIO**	**MyFlorida Net**	**Big Bend RHIO**
Calhoun	Calhoun-Liberty Hospital	$800	$600	$22,945	$1,400	$71,906	$2,200
Franklin	George Weems Memorial Hospital	$800	$600	$21,515	$1,400	$66,806	$2,200
Gadsden	Gadsden Community Hospital	$800	$600	$18,785	$1,400	N/A	$2,200
Gulf	Sacred Heart Hospital	$800	$600	N/A	$1,400	N/A	$2,200
Holmes	Doctor's Memorial Hospital	$800	$600	$14,995	$1,400	$47,246	$2,200
Jackson	Campbellton-Graceville Hospital	$800	$600	$9,715	$1,400	$31,406	$2,200
Jackson	Jackson Hospital	$800	$600	$19,955	$1,400	$62,126	$2,200
Madison	Madison County Memorial Hospital	$800	$600	$9,715	$1,400	$31,406	$2,200
Taylor	Doctor's Memorial, Inc.	$800	$600	$23,595	$1,400	$73,046	$2,200

5) Identify the source of financial support and anticipated revenues that will pay for costs not covered by the fund:

First year funding support will be provided through private-sector funding provided by a private investment Group, Flagler Holdings, Inc., This funding is a direct capital infusion to develop and install lines and the related telecommunications infrastructure to be operationalized during the second year of the project. It is anticipated that this funding will cover $1.5 million, or the remainder of the 15% match left after matching funds are located from other sources.

The Florida Rural Health Association has earmarked $9,500 in available grants funding to support this proposal.

The project team is negotiating with several regional companies, including Progress Energy, to waive monthly pole attachment fees, the estimated assessed donation of which is valued at $125,000 per year.

Big Bend RHIO will provide the interfaces for each rural hospital connection to the Big Bend RHIO health information network. The value of this financial donation is still under assessment.

6) List the health care facilities that will be included in the network: (hospitals, health departments, community health care clinics)

The following not-for-profit rural hospitals will be connected with the gigabit optical fiber network as part of the rural broadband pilot program.

Calhoun-Liberty Hospital – Calhoun County
20370 Northeast Burns Avenue
Blountstown, FL 32424
(850) 674-5411

George Weems Memorial Hospital – Franklin County
135 Avenue G
Apalachicola, FL 32320
(850) 653-8853

Gadsden Community Hospital – Gadsden County
23186 Blue Star Highway
Quincy, FL 32353-0819
(850) 875-1100
(Currently closed but expected to reopen during project period.)

Sacred Heart Hospital – Gulf County
Port St Joe, FL 32456
(Under Construction)

Doctor's Memorial Hospital – Holmes County
401 East Byrd
Bonifay, FL 32425
(850) 547-1120

Campbellton-Graceville Hospital – Jackson County
5429 College Drive
Graceville, FL 32440
(850) 263-4431

Jackson Hospital – Jackson County
4250 Hospital Drive
Marianna, FL 32446
(850) 526-2200

Madison County Memorial Hospital – Madison County
309 NE Marion Street
Madison, FL 32340
(850) 973-2271

Doctor's Memorial, Inc. – Taylor County
333 N. Byron Butler Parkway
Perry, FL 32348
(850) 584-0800

Not-for-profit hospitals and for-profit hospitals that will be offered access to the broadband network in the rural hospital pilot project include:

- Baptist Hospital – Escambia County
- Sacred Heart Hospital– Escambia County
- Capital Regional Medical Center – Leon County
- Tallahassee Memorial Hospital – Leon County
- Northwest Florida Community Hospital – Washington County

Health care clinics that could be included in the second phase of the pilot project, connected to the gigabit optical fiber network through a wireless broadband network include:

- Tallahassee Memorial Family Medicine – Calhoun County
- The Medical Center At Blountstown – Calhoun County
- Bayline Medical Center – Franklin County
- North Florida Medical Center – Franklin County
- Magnolia Medical Clinic – Franklin County
- North Florida Medical Center – Gadsden County
- Quincy Medical Group – Gadsden County
- Saint Joseph Care of Florida, Gulf County Health Department – Gulf County
- Cypress Medical Clinic – Gulf County
- Gulf Pines Medical – Gulf County
- North Florida Medical Center – Gulf County
- Shoreline Medical Group – Gulf County
- Ahmad Tariq Ismail – Holmes County
- Ikram U Qureshi, MD – Holmes County
- Mohammad Yungus, MD Rural Health Care – Holmes County
- Internal Medicine Associates – Jackson County

- North Florida Pediatrics RHC – Jackson County
- North Florida Pediatrics-Sneads – Jackson County
- Bond Community Health Center – Leon County
- Madison County Memorial Hospital – Madison County
- North Florida Medical Center – Madison County
- Four Freedoms Health Services – Madison County
- Madison Memorial Healthcare Center – Madison County
- Pediatric And Internal Medicine – Madison County
- Doctor's Memorial Family Practice – Taylor County
- Doctor's Memorial Hospital RHC – Taylor County
- Doctor's Memorial Hospital-Emergency – Taylor County
- Doctor's Memorial Internal Medicine – Taylor County
- North Florida Medical Center – Taylor County
- Steinhatchee Family Center – Taylor County
- Women's Health Center Of North Florida – Taylor County

The following Federally Qualified Community Health Centers will be included in the wireless broadband network in phase two of the pilot project:

Bond Community Health Center was formed in 1984 and has provided comprehensive quality health care and support services to the residents of Leon and surrounding counties for nearly a quarter of a century. Bond Community Health Center is located in Tallahassee, Florida's capital city. Bond's two state of the art facilities are within three miles of the Capitol building providing a full range of comprehensive quality health care and support services including an on-site pharmacy and the state's women, infant, & children (WIC) program.

North Florida Medical Centers, Inc. (NFMC) is a private not for profit health care corporation providing primary medical services to the rural communities of Gulf, Franklin, Wakulla, Madison, Dixie, Lafayette, Gadsden and their surrounding counties. Additionally, they provide dental services to the rural communities of Gadsden, Taylor and their surrounding counties.

Saint Joseph Care of Florida, Inc., is a private not-for-profit corporation founded in October 1999 as an outgrowth of a grassroots community process begun to address the county's alarming health status indicators and its resident's difficulty in accessing health care. The Gulf County Health Department was an integral partner in this community discussion and planning and was determined to be the logical service delivery partner with Saint Joseph Care in developing the plans for a new hospital, which will be completed in 2009.

7) Provide the address, zip code, Rural Urban Commuting Area (RUCA) code and phone number for each health care facility participating in the network.

The name, RUCA code and other identifying information for each of the hospitals connected to the gigabit fiber network are given in Table 2, based on the following Applicable RUCA Code Definitions:

1.0	Metropolitan area core: Primary flow within an Urbanized Area (UA)
2.0	Metropolitan area high commuting: Primary flow 30% or more to a UA
4.1	Metropolitan area Core: Secondary flow 30% through 49% to a UA
7.0	Small town core: Primary flow within an Urban Cluster of 2,500 through 9,999 (small UC)
7.3	Small town core: Secondary flow 10% through 29% to a UA
8.0	Small town high commuting: Primary flow 30% or more to a small UC
9.0	Small town low commuting: Primary flow 10% through 29% to a small UC
9.1	Small town low commuting: Secondary flow 10% through 29% to a UA
10.0	Rural areas: Primary flow to a tract outside a UA or UC (including self)
10.1	Rural areas: Secondary flow 30% through 49% to a UA
10.4	Rural areas: Secondary flow 10% through 29% to a UA
10.6	Rural areas: Secondary flow 10% through 29% to a small UC

Legend:
UA=Urbanized Area
UC=Urban Cluster

Table 2. Hospitals in First Year Implementation Plan, with RUCA Codes

Facility/Address	Zip Code	RUCA Code	Phone Number
CALHOUN-LIBERTY HOSPITAL **CALHOUN COUNTY** 20370 Northeast Burns Avenue Blountstown, Fl	32424	7.0	(850) 674-5411
GEORGE WEEMS MEMORIAL HOSPITAL **FRANKLIN COUNTY** 135 Avenue G Apalachicola, Fl	32320	7.0	(850) 653-8853
GADSDEN COMMUNITY HOSPITAL **GADSDEN COUNTY** 28186 Blue Star Highway Quincy, Fl	32353-0819	4.1	(850) 875-1100
SACRED HEART HOSPITAL **GULF COUNTY** Port St Joe, FL	32456	7.3	N/A